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WHOLE No. 2247.

HOW JUICE OF CANE IS WEIGHED

A Machine at Iron Works Which is Accurate.

One of the most recent and valuable inventions in connection with sugar production not only in the Hawaiian Islands, but in all sugar-producing countries, is the new cane-juice weighing machine, being built by the Honolulu Iron Works, the patent for which was taken out on February 26, 1901, by C. Hedemann, manager of the iron works, and now held by the latter company. There are two machines already set up in the main shop of the works where they have recently been examined by sugar men. All who have taken the pains to make a careful study of the automatic features of the machine pronounce it one of the most important additions to the profitable production of sugar, in that it gives an accurate measurement of every drop of juice that goes into the machine.

The smaller machine which is now being constructed by the iron works has the appearance in miniature of the walking beam mechanism of a side-wheel steamer. The mechanical weighing features are so delicately adjusted that it takes but the weight of a drop of cane juice to tip the weighing pan over and allow the contents to run into a tank, when its holding capacity has been reached, at the same time shutting off the flow until the opposite side of the pan is presented for filling. By the same automatic process the flow is again started, each tilt being automatically registered. The machine now on exhibition consists of a pipe lying horizontally across the top of the weigher. This supplies the juice into the machine which is originally brought from a tank and deposited directly into the feed pipe. The juice will pass from the feed pipe through a slit on the under side into a copper spout. This spout discharges in turn into the so-called weighing box, made of copper, which is partitioned in the center, the ends being open.

The weigher is adjusted to tip one side or the other by the reception of a certain amount of juice. In the copper spout is a knife-shaped blade, which, by an arrangement can be turned to the right and left, thus diverting the juice into one partition of the weighing box or the opposite side as the case may be. When the juice commences to enter the feed pipe and is discharged through the nozzle into the copper spout, it will fill one side of the weighing box. When the quantity of juice collected in that partition has reached a certain weight the weighing box will turn down, being mounted on knife-edges, and discharge the contents into the tank below, from which it is taken for further treatment into containers made for the purpose.

By turning the weighing box down, the other partition of the weigher is raised up and puts the partition in the center of the box in such a position that the copper spout will discharge into the new side thus presented. As soon as the box commences to tilt over, the knife-shaped cut-off plate will make a quick move, thus shutting off the flow of the juice into the partition which was filling, and turning the flow over into the other end. The quick movement of this cut-off plate eliminates all inaccuracies in weighing. The arrangement of this cut-off is one of the essential features of the weighing machine, which have brought it so prominently to the attention of planters.

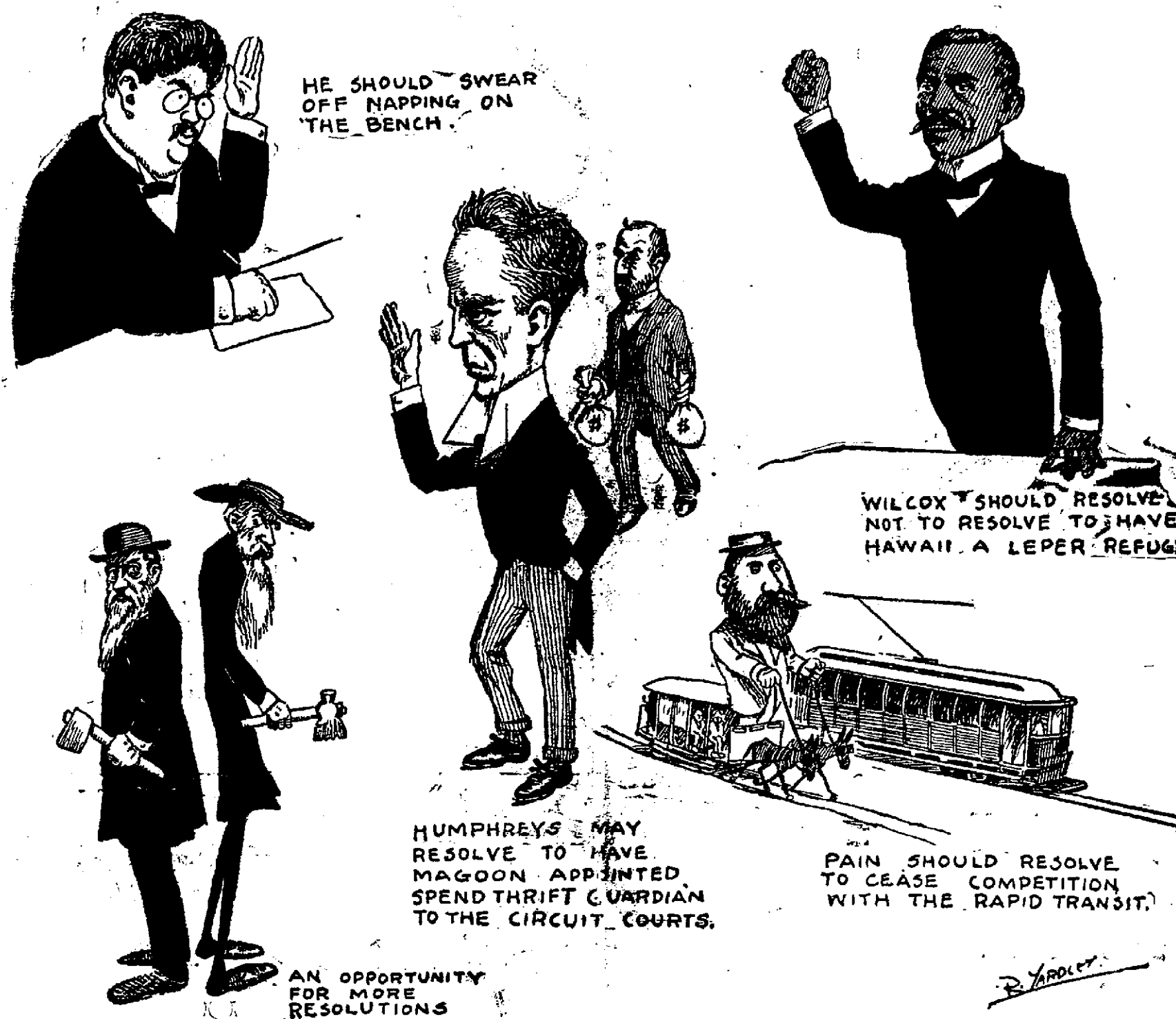
The weighing box is provided with pipes which contain a certain quantity of mercury for the purpose of keeping the weighing box in position when filling, for such a time, that it will always take the full weight of its capacity before tilting. To avoid a heavy jarring when the tilting occurs, the machine is provided with air-cushions which insure an easy and noiseless movement.

Every machine is provided with an automatic register which counts the number of strokes made by the tilting of the weighing box, thus giving, with the greatest accuracy, the number of partition discharges and the quantity of juice which passes through the machine. The machines are being built in several sizes. The smaller ones have a capacity of from 2000 to 3000 gallons per hour, and the larger ones about 12,000 gallons per hour.

The weighing machine is placed within a tank from which the juice is again discharged through a nozzle in the bottom into containers. At the same time the juice samples itself. Every time the weighing box falls in one side or the other, a drop falls into a spout which leads to an opening in one end of the tank, through a stop cock and then into a bottle, which enables the chemist to commence his analytic work at that stage.

Opposite the axes and journals of the machine is an opening in the tank provided with a glass covering through which the person attending the machine can observe just how the machinery is working. A trap door also

NEW YEAR RESOLUTIONS.



THE ESTIMATED SUGAR CROP OF HAWAII FROM NOVEMBER 1, 1901, TO NOVEMBER 1, 1902

	1901 Nov.	1901 Dec.	1902 Jan.	1902 Feb.	1902 March	1902 April	1902 May	1902 June	1902 July	1902 Aug.	1902 Sept.	1902 Oct.	1902 Nov.
H. Hackfeld & Co.	1,200	6,500	10,550	11,250	11,400	10,950	9,800	5,900	4,900	1,100			75,000
T. H. Davies & Co.	1,300	2,010	4,250	4,950	5,400	5,100	5,100	2,500	2,500	1,500			27,500
B. F. Dillingham & Co.			3,000	3,000	3,000	3,000	3,000	3,000	2,000				20,000
M. S. Grinbaum & Co.	400	1,200	1,400	1,400	1,400	1,400	1,400	900	400	400			10,000
F. A. Scheffer & Co.			800	1,100	700	1,150	1,350	640	650				6,000
H. Waterhouse & Co.			675	925	400	475	650	225	190				3,500
Alexander & Baldwin	1,250	1,200	2,175	2,175	7,000	7,000	7,000	5,500	2,275				45,500
C. Brewer & Co.	1,600	900	2,900	4,300	3,200	4,500	3,200	4,200	3,300	2,100	1,000	1,000	31,000
Castle & Cooke, Ltd.	3,000	1,400	4,200	5,100	5,500	5,500	5,500	5,500	5,150	3,100	3,100	3,100	50,400
	8,440	13,350	29,510	27,875	40,150	40,875	38,750	31,015	24,100	10,225	4,100	4,100	181,000

RAIL													
H. Hackfeld & Co.			4,000	4,000	4,400	4,000	3,900	2,800	1,454	400			25,194
T. H. Davies & Co.			2,000	2,000	2,200	2,200	1,442	1,400	625	570			13,097
B. F. Dillingham & Co.			1,700	1,700	1,750	1,700	1,550	1,010	500				10,040
M. S. Grinbaum & Co.			500	500	500	500	450	382	115	150			4,020
F. A. Scheffer & Co.			225	340	140	160	270	230	110				2,010
H. Waterhouse & Co.			130	410	170	60	40	60	35	20			1,222
Alexander & Baldwin	1,250	1,200	800	1,270	1,900	1,400	1,723	1,828	1,350	850			13,800
C. Brewer & Co.	1,600	900	800	1,310	1,850	1,140	1,130	1,470	870	600	500	500	12,820
Castle & Cooke, Ltd.	3,150	1,650	745	1,490	1,550	1,500	1,829	1,940	638	1,180	1,400	1,500	18,000
	6,000	4,000	11,000	14,000	14,000	13,000	13,000	13,000	6,000	4,000	7,000	2,000	100,000

HORN BY STEAM													
H. Hackfeld & Co., Honolulu			2,200	2,100	2,700	1,200	1,200	2,440	3,832	3,333			21,945
T. H. Davies & Co.			1,100	600	900	800	800	1,000	1,200	960			6,365
B. F. Dillingham & Co.			500	500	500	400	400	300	470	460			3,780
Alexander & Baldwin			200	400	250	250	250	200	708				2,058
F. A. Scheffer & Co.			200	500	600	500	249	400	400	882			2,432
M. S. Grinbaum & Co.			300	800	250	250	101						1,201
H. Waterhouse & Co.													
			6,200	5,400	6,300	3,400	3,000	4,340	8,540	4,540			38,420
T. H. Davies & Co., Hilo				2,000			2,000		1,800	1,200			8,500
B. F. Dillingham & Co.				3,600			3,000		3,800				9,968
				5,600			5,000		4,960	1,200			18,468
Alexander & Baldwin, Kaula			2,000			8,000		8,000		2,250			10,250
H. Hackfeld & Co., Lahaina			800			1,800		850					3,050
			8,000	11,000	6,300	8,000	8,000	8,000	11,000	8,000			68,200

REFINERY													
H. Hackfeld & Co.	1,200	6,500	2,400	4,400	4,500	4,150	1,871						72,451
T. H. Davies & Co.	1,300	2,010	1,500	200	2,350	3,900	879						11,359
F. A. Scheffer & Co.	400	1,200	400	180	400	180	620	191					3,875
M. S. Grinbaum & Co.			150	295	10	75	307	145	105				1,077
H. Waterhouse & Co.													
	2,990	9,710	4,550	4,415	6,255	8,455	3,154	386	105				40,000
Alexander & Baldwin				2,755	4,450	3,170	4,728	1,870	2,525				18,070
Castle & Cooke, Ltd.			2,100	2,900	2,900	2,900	2,100	2,100	1,200	1,000			18,000
C. Brewer & Co.			2,500	3,500	1,645	1,900	2,040	2,100	2,100	1,300	500	500	15,000
			4,500	8,745	3,955	7,000	6,708	5,102	5,720	2,300	500	500	54,000

HORN BY SAIL													
C. Brewer & Co.					1,400	1,700		1,000					4,500
Castle & Cooke					3,700		1,911						14,200
					5,100	1,700							18,700

